Agriculture Canada

Research Branch | Direction générale de la recherche

Report C - 005 Rapport

April 1988 Avril

Engineering and Statistical Research Centre

Centre de recherche technique et statistique

Listing of Engineering Research Contract Reports under the DREAM, AERD and ERDAF Programs of the Research Branch, 1973 – 1988

Liste des rapports de contrats de recherches techniques réalisés au titre des programmes DREMA, RDGR et RDEAA de la Direction générale de la recherche de 1973 – 1988

B. A. Morrison
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Canada

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Contribution no. C-005 from Engineering and Statistical Research Centre, Research Branch, Agriculture Canada, Ottawa, Ontario K1A 0C6

Contribution no. C-005 Centre de recherche technique et statistique, Direction générale de la recherche, Agriculture Canada, Ottawa, Ontario K1A 0C6

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*Dans toutes les sections, l'astérisque identifie l'autorité scientifique qui a supervisé le contrat.

INTRODUCTION

Introduction

To supplement in-house research, the Research Branch of Agriculture Canada contracted out research to other performers. Three of these contracted-out programs supported work in engineering and are identified as DREAM, AERD and ERDAF. More details on the program names and purposes are given below.

The Engineering and Statistical Research Centre (ESRC) formerly the Engineering and Statistical Research Institute (ESRI) was involved in establishing each of the three engineering contract programs. The purpose of this list is to record the contracts awarded under the programs and provide reference citations of the contract reports. The reports are not listed by program, but are grouped by contract file number, scientific authority, author (contractor) and subject. The "scientific authority" is the technical representative of Agriculture Canada assigned to supervise the contract.

History of the Programs

In 1973, Agriculture Canada, under the contracting-out policy of the Federal Government, implemented a program for the support of agricultural mechanization in Canada, by contracting research to non-federal Government agencies, industry, universities, or individuals. The program was called Development, Research and Evaluation in Agricultural Mechanization (DREAM).

In 1977-78 contracts under the new Energy in Agriculture program were added. This was the beginning of the Agricultural Engineering Research and Development Program (AERD) which replaced DREAM. Later, work in farm buildings was also supported.

In 1981 a new program, called Energy Research and Development in Agriculture and Food (ERDAF) was established, leaving the remaining mechanization and farm buildings agricultural engineering contract work in AERD. The administration of the AERD program was then transferred from ESRC to the then Prairie Regional Headquarters in Regina, Saskatchewan. The ERDAF program is administered by ESRC.

Introduction

Pour complémenter leur recherche interne, la direction générale de la recherche d'Agriculture Canada a contracté des travaux de recherches à l'extérieur. Trois de ces programmes d'impartition pour la recherche en génie sont le DREMA, le RDGR, et le RDEAA. Vous trouverez, ici-bas, des détails additionnels sur le nom et le but de ces programmes.

Le Centre de recherche technique et statistique (CRTS) anciennement l'Institut de recherche technique et statistique (IRTS) a été responsable de la création de chacun de ces trois programmes. Le but de cette liste est d'indiquer quels contrats ont été accordés sous ces programmes et fournir les références des rapports reçus dans le cadre de ces contrats. La liste n'est pas subdivisée par programmes, mais plutôt en quatre sections: par numéro de dossier du contrat, par expert scientifique, par auteur (entrepreneur) et par sujet. "L'expert scientifique" est le représentant technique d'Agriculture Canada assigné à la supervision du contrat.

Historique du Programme

En 1973, Agriculture Canada, en application de la politique d'impartition du gouvernement fédéral, a mis en oeuvre un programme d'aide à la mécanisation de l'agriculture au Canada, en attribuant des contrats de recherche à des organismes indépendants du gouvernement fédéral, à des membres du secteur privé, à des universités ou à des particuliers. Le programme a été désigné Programme de développement, de recherches et d'évaluation en mécanisation agricole (DREMA).

En 1977-1978, les contrats adjugés au titre du nouveau programme concernant l'énergie en agriculture ont été ajoutés. C'était le début du Programme de recherche et de développement en génie rural (RDGR) qui a remplacé le DREMA. Par la suite, des travaux sur les bâtiments agricoles ont également bénéficié d'une aide.

En 1981, un nouveau programme, le Programme de recherche et de développement énergétiques en agriculture et en alimentation (RDEAA), a été créé, alors que les autres contrats en génie rural concernant la mécanisation et les bâtiments agricoles continuèrent à relever du programme RDGR. L'administration de ce dernier programme a alors été transférée du CRTS au bureau principal des régions des Prairies, à Regina, Saskatchewan. Le programme RDEAA est administré par le CRTS.

Program Funding and Budgetary Data

Energy R&D contract work in the Department started under the DREAM program as a minor component, followed by a number of ad hoc interdepartmental funding transfer arrangements that developed in the 1970's. Since 1980, the energy program has been funded under the National Energy Program (NEP). Total expenditures between 1973 and the end of the 1984-85 fiscal year amount to about $30 million for some 300 projects. ERDAF annual funding increased to a peak of $8 million in 1984-85, but was reduced to $2.2 million in 1987-88. The DREAM and then the AERD program were funded with an annual budget of $0.8 million.

The AERD program has been terminated, the ERDAF program is continuing at $1.5 million annually, managed by the Director General, Central Region, Research Branch, Agriculture Canada, Room 705, Sir John Carling Building, Ottawa, Ont. K1A 0C5 tel:(613)995-7084

How to Obtain Contract Reports

Contract reports are not printed in quantity for distribution, but are available to the public on loan or can be purchased as microfiche. The loaning of hard copy and distribution of microfiche copies is handled by the National Research Council, Canada Institute for Scientific and Technical Information (CISTI). To increase access, loan copies of reports are also available from Agriculture Canada. References are cited in the language in which they were provided.

When requesting a contract report please provide full bibliographic details (authors, title, date).
Please contact:
National Research Council
Canada Institute for Scientific and
Technical Information,
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or:

Agriculture Canada Library
Sir John Carling Bldg.
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Ottawa, Ont. K1A 0C6
Tel: (613) 995-7829

Financement du programme et données budgétaires

Les premiers travaux d'impartition sur la recherche et le développement en énergie du Ministère ont d'abord été un élément mineur du programme DREMA, puis ont été suivis d'une série d'arrangements spéciaux sur le transfert de fonds interministériel durant les années 1970. Depuis 1980, le programme a été financé par le Programme énergétique national (PEN). Entre 1973 et la fin de l'année budgétaire 1984-1985, les dépenses totales se sont chiffrées à environ 30 millions de dollars, consacrés à quelques 300 projets. Le financement annuel du programme RDEAA a atteint un sommet de $8 millions en 1984-1985, mais a été réduit à $2,2 millions en 1987-1988. Les programmes DREMA et RDGR ont bénéficié d'un budget annuel de 0,8 million de dollars.

Le programme RDGR est terminé, mais le programme RDEAA continue avec un budget annuel de $1.5 million, administré par le Directeur Général, Région Centrale, Direction générale de la recherche, Agriculture Canada, Pièce 705, Edifice Sir John Carling, Ottawa, Ont. K1A 0C5 tel: (613)995-7084.

Mode d'obtention des rapports de contrat

Tous les rapports publiés sont accessibles au public. Le prêt de copie en clair et la distribution des microfiches sont assurés par l'Institut canadien de l'information scientifique et technique (ICIST) du Conseil national de recherches. Les copies en clair peuvent être empruntées tandis que les microfiches sont vendues au prix coûtant. Pour faciliter l'obtention de ces rapports, les copies peuvent aussi être empruntées d'Agriculture Canada. Les titres des rapports sont cités dans la langue dans laquelle ils nous ont été fournis.

Lors de demande d'un rapport de contrat, veuillez indiquer les auteurs, le titre et la date.
Communiquez avec:
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ou:

Bibliothèque d'Agriculture Canada
Edifice Sir John Carling
930, av. Carling
Ottawa (Ontario) K1A 0C6
Tél.: (613) 995-7829

Contract Summaries:

For completed contracts, ESRC publishes reports containing brief summaries of the work done in each contract. The Prairie Region also published summaries for the AERD program. These summary reports are available as follows:

DREAM

Report 537: Summary of 1974-75 Contract Reports of the Research, Development and Evaluation in Agriculture Mechanization (DREAM) Program. June 1975, 48 pp.

Report 595: Summary of 1975-76 Contract Reports of the Research Development and Evaluation in Agricultural Mechanization (DREAM) Program. May 1976, 38 pp.

Report 682: Summary of 1976-77 Contract Reports of the Research, Development and Evaluation in Agricultural Mechanization (DREAM) Program. May 1977, 68 pp.

AERD

Report I-117: Summary of 1977-78 Contract Reports of the Agricultural Engineering Research and Development (AERD) Program. June, 1979, 30 pp.

Report I-212: Summary of 1978-79 Contract Reports of the Agricultural Engineering Research and Development (AERD) Program. August 1980, 52 pp.

Report I-419: Summary of 1979-1980 Contract Reports of the Agricultural Engineering Research and Development (AERD) Program. June, 1982, 48 pp.

Report I595: Summary of 1980-1981 Contract Reports of the Agricultural Engineering Research and Development (AERD) Program. April 1984, 46 pp.

Report: Summary of 1981-1983 Contract Reports of the Agricultural Engineering Research and Development (AERD) Program. 1986, 87 pp.

Report: Summary of 1983-1984 Contract Reports of the Agricultural Engineering Research and Development (AERD) Program. 1987.

Résumé des Rapports:

Pour les contrats complétés, le CRTS publie un rapport comprenant un résumé du travail accompli dans le cadre de chaque contrat. La région des prairies a aussi publiée une série de résumés pour le programme RDGR. Ces rapports sont disponibles comme suit:

DREMA

Rapport 537: Résumé des rapports des travaux faits à contrat en 1974-1975 dans le cadre du Programme de développement, de recherches et d'évaluation en mécanisation agricole (DREMA). Juin 1975, 48 pp.

Rapport 595: Résumé des rapports des travaux faits à contrat en 1975-1976 dans le cadre du Programme de développement, de recherches et d'évaluation en mécanisation agricole (DREMA). Mai 1976, 38 pp.

Rapport 682: Résumé des rapports des travaux faits à contrat en 1976-1977 dans le cadre du Programme de développement, de recherches et d'évaluation en mécanisation agricole (DREMA). Mai 1977, 68 pp.

RDGR

Rapport I-117: Résumé des rapports des travaux faits à contrat en 1977-1978 dans le cadre du Programme de recherche et de développement en génie rural (RDGR). Juin 1979, 30 pp.

Rapport I-212: Résumé des rapports des travaux faits à contrat en 1978-1979 dans le cadre du Programme de recherche et de développement en génie rural (RDGR). Août 1980, 52 pp.

Rapport I-419: Résumé des rapports des travaux faits à contrat en 1979-1980 dans le cadre du Programme de recherche et de développement en génie rural (RDGR). Juin 1982, 48 pp.

Rapport I-595: Résumé des rapports des travaux faits à contrat en 1980-1981 dans le cadre du Programme de recherche et de développement en génie rural (RDGR). Avril 1984, 46 pp.

Rapport: Résumé des rapports des travaux faits sous contrat en 1981-1983 dans le cadre du programme de Recherche et de Développement en Génie Rural (RDGR). 1986, 87 pp.

Rapport: Résumé des rapports des travaux faits sous contrat en 1983-1984 dans le cadre du programme de Recherche et de Développement en Génie Rural (RDGR). 1987.

ERDAF	**RDEAA**
Report I-233: Summary of Agriculture Canada's Energy Research and Development Contract Reports. November 1980, 27 pp.	Rapport I-233: Résumé des rapports des travaux faits à contrat au titre du Programme de recherche et de développement énergétiques en agriculture et en alimentation. Novembre 1980, 27 pp.
Report I-454: Summary of Agriculture Canada's Energy Research and Development Contract Reports (1979-80). October 1982, 22 pp.	Rapport I-454: Résumé des rapports des travaux faits à contrat au titre du Programme de recherche et de développement énergétiques en 1979-1980. Octobre 1982, 22 pp.
Report I-743: Summary of 1980-1983 Contract Reports of the Energy Research and Development in Agriculture and Food (ERDAF) Program. August 1984, 72 pp.	Rapport I-743: Résumé des rapports sur les travaux réalisés à contrat au titre du Programme de recherche et de développement énergétiques en agriculture et en alimentation (RDEAA). Août 1984, 72 pp.
Report I-944: Summary of 1983-1985 Contract Reports of the Energy Research and Development in Agriculture and Food (ERDAF) Program. 1987, 129 pp.	Rapport I-944: Résumé des rapports des travaux faits sous contrat en 1983-1985 dans le cadre du programme de Recherche et de Développement Energétique dans l'Agro-Alimentaire (RDEAA). 1987, 129 pp.

LIST OF CONTRACTS BY FILE NUMBER

CONTRATS PAR ORDRE NUMERIQUE

4-0223
Symes, O.L., *Downing, C.G.E., 1975. Report on engineering study of wild oats control 1974-1975. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0223, 56 pp.

4-0241
Kennedy, G.F., *Downing, C.G.E., 1975. Performance evaluation of BEI raspberry harvester on the British Columbia raspberry crop--1974. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0241, 76 pp.

4-0246
Metzger, J.F., Nyborg, E.O., *Downing, C.G.E., 1975. Development of a precision seeder and mulch applier. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0246, 41 pp.

4-0247
Jacob, G., *Feldman, M., 1974. Rapport sur l'essai d'une barre de coupe speciale pour la recolte du tournesol. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0247, 15 pp.

4-0248
Murray, C.F., *Feldman, M., 1974. Evaluation of large package hay baler performance and bale quality. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0248, 11 pp.

4-0249
Clark, J.H., *Feldman, M., 1975. Instrumentation of tractor to measure tillage forces. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0249, 25 pp.

4-0250
Camirand, M.L., *Feldman, M., 1975. Essais de la presse a balles rondes/Evaluation of large round balers for Quebec conditions. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0250, 27 pp.

4-0251
Jacob, G., *Downing, C.G.E., 1974. Essai de la recolteuse a pommes tombees Castle Harvester/Suitability of the Castle Harvester Co. fruit pickup machine for use in Quebec apple orchards. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0251, 14 pp.

4-0255
Friesen, O.H., *Feldman, M., 1974. Hay and forage harvesting methods. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0255, 37 pp.

4-0256
Raghavan, G.S.V., McKyes, E., *Feldman, M., 1975. A Study of traction and compaction problems on Eastern Canadian agricultural soils--Part I. (see 5-0009). Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0256, 225 pp.

4-0257
Small, D., *Feldman, M., 1975. Report on fababean harvest loss tests. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0257, 39 pp.

4-0260
Lapp, H.M., *Downing, C.G.E., 1975. Study of the technical and economic feasibility of methane gas production for energy purposes through anaerobic digestion of animal manure. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0260, 71 pp.

4-0261
Gunn, J.D., *Downing, C.G.E., 1975. Recycling pasteurized organic protein. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0261, 21 pp.

4-0264
Boily, R.J., *Feldman, M., 1975. Ridge cropping system in Quebec - 1974. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0264, 19 pp.

4-0266
Carson, V.M., *Lievers, K.V., 1975. Development of a mathematical model of farm machinery scheduling. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0266, 84 pp.

4-0267
Russell, L.T., *Feldman, M., 1974. Development of a prototype seeder and the assessment thereof for early planting of cereals. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0267, 12 pp.

4-0268
Whalen, J.E., *Downing, C.G.E., 1975. Prototype vegetable seeder. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0268, 12 pp.

4-0269
Adsett, J., *Feldman, M., 1974. N.B. broadcast and drill seeder evaluation. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0269, 36 pp.

4-0270
Clark, D.E., *Feldman, M., 1974. 1974 European forage handling equipment. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0270, 34 pp.

4-0272
Jacob, G., *Feldman, M., 1975. Essai d'un porte-outils/Hitch for two implements in tandem. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0272, 22 pp.

4-0273
Coote, D.R., *Downing, C.G.E., 1975. Runoff characteristics from feedlots and manure storage areas in South-West Ontario. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0273, 73 pp.

4-0279
Pos, J., *Hore, F.R., 1974. To Evaluate floating aerators for controlling odour of stored liquid manure under actual farm conditions. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0279, 12 pp.

4-0287
Bomford, P.H., *Downing, C.G.E., 1974. A Study of the present use and adequacy of mechanical harvesting aids for vegetable crops in Southern Ontario. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0287, 27 pp.

4-0288
Scott, D.W., Barlott, P.J., *Lievers, K.V., 1975. Grain harvesting and drying systems analysis. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0288, 101 pp.

4-0289
Borg, R.D., Domier, K.W., Stephanson, B.T., *Downing, C.G.E., 1975. Vibration levels on self-propelled swathers and combines. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0289, 63 pp.

4-0546
Miller, V.W., *Hore, F.R., 1975. Evaluation of pumps and sprinkler nozzles in the handling of liquid dairy manure. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0546, 8 pp.

4-0547
Lenton, K.G., *Feldman, M., 1975. Evaluation of mixing performance of on-farm feed mixers. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0547, 43 pp.

4-0563
Stone, R.P., *Feldman, M., 1974. The Soybean harvesting loss report. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0563, 25 pp.

4-0566
Bellman, H.E., *Turnbull, J.E., 1975. An Evaluation of mechanical bunk feeders for silage and grain feeding to cattle. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0566, 39 pp.

4-0568
Kirk, W.C., *Feldman, M., 1975. Deep tillage a review of its status in international agriculture particularly with regard to the management of Solonetzic soils. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0568, 90 pp.

4-0571
West, B.S., *Hore, F.R., 1975. Studies on swine manure treatment using vibratory screens, sand and hypochlorination. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0571, 16 pp.

4-0573
Cancelled.

4-0574
Stephanson, B.T., *Downing, C.G.E., 1975. Energy budgets for crops grown in Western Canada. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0574, 61 pp.

4-0576
West, B.S., *Hore, F.R., 1975. Studies on a mixing and distribution system for swine manure lagoons. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0576, 36 pp.

4-0621
Benedetti, L., *Downing, C.G.E., 1975. Study of the developments in fruit and vegetable harvesting mechanization for several important crops in Quebec. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 4-0621, 48 pp.

4-0628
Read, D., *Hergert, G.B. Prototype vegetable seeder. No report available.

5-0001
Barlott, P.J., *Lievers, K.W., 1976. A Study of grain harvesting and drying systems. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0001, 117 pp.

5-0002
Pos, J., *Hore, F.R., 1975. Evaluate floating aerators for control of odours from stored liquid manure under actual farm conditions. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0002, 41 pp.

5-0003
Everett, C.F., *Kemp, J.G., 1976. Broadcast drill seeder evaluation. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0003, 28 pp.

5-0004
Friesen, O.H., *Feldman, M., 1975. Hay harvesting methods--1975. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0004, 13 pp.

5-0005
Russell, L.T., *McLeod, C.D., 1976. Early cereal seeding equipment. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0005, 19 pp.

5-0006
Carson, W.M., *Lievers, K.W., 1977. Development of work day probability model to schedule farm machinery for livestock enterprises. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0006, 219 pp.

5-0007
Bomford, P.H., *Downing, C.G.E., 1975. Harvesting aids for vegetable crops in southern Ontario. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0007, 12 pp.

5-0008
Clark, J.H., *Feldman, M., 1975. Determination of power requirements for plowing in a variety of soil types and conditions. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0008, 74 pp.

5-0009
Raghavan, G.S.V., McKyes, E., *Feldman, M., 1976. Study of traction and compaction problems on Eastern Canadian agricultural soils--Part II. (Continued from 4-0256). Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0009, 279 pp.

5-0010
Lal, R., Reed, W.B., *Downing, C.G.E., 1976. Wild oat control. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0010, 96 pp.

5-0011
Cancelled.

5-0012
Carson, W.M., *Hore, F.R., 1976. Testing and analysing performance characteristics of manure slurry pumps and sprinkler nozzles. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0012, 104 pp.

5-0013
Staley, L.M., *Turnbull, J.E., 1975. Revision of the agricultural material handling manual. Agriculture Canada, Publication 5002.

5-0014
Spiess, L.B., *Korven, H.C., 1975. Evaluation of center pivot irrigation machine. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0014, 25 pp.

5-0015
Bomford, P.H., *Lievers, K.W., 1975. A Study of the on-farm performance of farm machine systems. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0015, 30 pp.

5-0016
Clark, D.E., *Feldman, M., 1975. An Evaluation of European forage handling equipment. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0016, 23 pp.

5-0017
Gunn, J.D., *Downing, C.G.E., 1975. An Evaluation of a system for processing agricultural waste for livestock feed. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0017, 22 pp.

5-0018
Cancelled.

5-0019
Lapp, H.M., *Downing, C.G.E., 1976. A Study of the feasibility of using methane gas produced from animal waste for energy. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0019, 184 pp.

5-0020
Cancelled.

5-0021
Spankie, J., *Feldman, M., 1976. Pneumatic seeder and fertilizer applicator in combination with a discer and with a cultivator. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0021, 15 pp.

5-0022
Townsend, J.S., *Feldman, M., 1976. Design and testing of zero-tillage planting equipment for use in heavy trash cover conditions. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0022, 8 pp.

5-0023
Maybank, J., *Hay, J.R., 1975. Comparison of swath deposit and drift characteristics of ground-rig and aircraft herbicide spray systems--report of the 1975 field trials. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0023, 30 pp.

5-0024
Kehler, W.A., *Korven, H.C., 1975. Design, construction and testing of an irrigation ditch grass seeder. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0024, 11 pp.

5-0025
Browning, D.A., Clark, D.E., *McLeod, C.D., 1975. Evaluation of the Dutch thermal crop treatment machine. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0025, 13 pp.

5-0026
Friesen, O.H., *Feldman, M., 1975. Shallow depth grass seeder. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0026, 4 pp.

5-0027
Boily, R.J., *Feldman, M., 1975. Ridge and furrow equipment for cropping systems in Quebec. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0027, 25 pp.

5-0028
West, B.S., *Hore, F.R., 1976. Solids separation treatment installation in a swine production facility. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0028, 32 pp.

5-0029
Wiens, E.H., *Feldman, M., 1976. Development of deep tillage equipment for Solonetzic soil. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0029, 36 pp.

5-0030
Sonnenberg, B., *Voisey, P.W., 1975. Tomato harvester modification and evaluation. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0030, 34 pp.

5-0031
MacAulay, J.T., *McLeod, C.D., 1975. Development and evaluation of a mechanical harvester for lowbush blueberries. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0031, 13 pp.

5-0032
Stuchly, S.S., Townsend, J.S., *Buckley, D.J., 1976. Development and testing of a slip monitor for traction equipment. Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0032, 104 pp.

5-0033
Bigsby, F.W., *Buckley, D.J., 1976. Fuel efficiency monitoring for field operations (see also 6-0603). Eng. Stat. Res. Inst., Agriculture Canada, Contract No. 5-0033, 2 pp.

5-0034
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